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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,921	09/30/1999	ANTHONY J. RICCI	LAMIP118	4619

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EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
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1763

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DATE MAILED: 04/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/408,921

Applicant(s)

RICCI ET AL.

Examiner

Richard Bueker

Art Unit

1763

Paper no. 10

4-11-02

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1 and 12, the use of the word "may" is vague and indefinite. It is unclear if these claims are intended to include micro-defects that may not lead to contamination of a wafer in the processing chamber. In claims 1 and 12, the phrase "after machining" is vague and indefinite because there is no recitation of a machining step in these claims. Claim 8 defines the GDP as including "a material whose products from reacting with the process chemistry used in the semiconductor fabrication apparatus are gaseous". As noted in the previous office action, since the "process chemistry" is undefined, a GDP, which is defined in terms of the process chemistry, is also undefined, and therefore the GDP recited in claim 8 is indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371 of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maydan (5,746,875). Maydan discloses a GDP for use in a plasma etch apparatus, wherein the GDP is constructed of a ceramic of the type recited in present claim 10. The GDP is treated to remove surface defects, in order to eliminate particle defects when the GDP is used for wafer processing. Maydan discloses (col. 5, line 58 to col. 6, line 19) that polishing procedures achieve a defect free smooth surface on each piece. Regarding the step of heating recited in claims 3 and 15-18, it is noted that these claims are product-by-process claims and will be treated in the manner described in MPEP 2113. As stated therein, the use of 35 U.S.C. 102/103 rejections for product-by-process claims has been approved by the courts. "When the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable", *In re Brown*, 173 USPQ 685. Regarding claim 7, it is noted that Maydan's Figs. 18 and 20, for example, show a part (330' for example) having a gas distribution groove in its back face, while Maydan. indicates at col. 5, line 64, that his parts are machined, so it is inherent or at least obvious that the groove in part 330' of Fig. 18 can be formed by machining.

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Claims 1-6, 8, 12-16, 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shang. Shang discloses a GDP (see col. 6, lines 5-17 and 48-58, and col. 7, lines 1-23 and 40) for use in a plasma etch apparatus, wherein the GDP is treated to remove surface defects, in order to eliminate particle defects when the GDP is used for wafer processing. Shang discloses a step of heating the GDP to 100° C (col. 6, line 50) or 350° C (col. 6., line 58), which explicitly meets the limitations of claims 3, 15 and 16. Regarding product-by-process claim 18, there is no physically distinguishing feature discernable between the GDP disclosed by Shang and the GDP recited in claim 18.

Claims 1-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wicker I (5,993,594). Wicker discloses a GDP made by hot pressing silicon nitride at a temperature above 1500° C (col. 7, lines 34-38). Wicker teaches (col. 3, lines 33-42) that his GDP results in much reduced particulate generation and much lower rate of chemical reaction with process gases. In view of the product-by-process nature of applicant's claims, the GDP of Wicker is prima facie not distinguishable from the presently claimed GDP.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wicker I (5,993,594), Chen (5,824,605) or Wicker II (5,863,376), taken in view of Maydan (5,746,875) and/or applicants' description of the prior art. Wicker I and II and Chen all disclose ceramic GDPs, which are sintered at high temperature during fabrication. Maydan teaches that it is desirable to polish a ceramic GDP to remove surface defects and thus reduce contamination due to erosion or corrosion during wafer

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processing. It would have been obvious to one skilled in the art to polish the ceramic GDP of Wicker I or II or Chen in view of Maydan's teaching that polishing a ceramic GDP will reduce contamination during wafer processing. Furthermore, applicants' description of the prior art discloses that it was a conventional practice in the prior art to season a GDP in a reactor for 10 hours (see last paragraph of page 2 of applicants' specification). It thus would have been obvious to one skilled in the art to season a GDP such as that of Wicker I or II or Chen or even Maydan in order to further reduce particulates if so desired. Applicants' product-by-process as presently written do not distinguish over such a seasoned prior art GDP in any discernable way. It is noted that seasoning by operating the processing chamber for 10 hours is a high temperature process, which inherently heats the GDP (see col. 6, lines 30-31 of Wicker II for example), at least to the extent recited in claims 3 and 15-16.

Applicants' arguments have been considered but are not persuasive. Maydan teaches (col. 5, line 58, to col. 6, line 19) that his GDP is defect free. Shang also teaches that surface defects are removed from his GDP. Wicker also teaches reduced particle generation and a much lower rate of chemical reaction with process gas.

It is noted also that claim 7 is the only claim that specifically recites a machining step. The other claims are written in a manner that does not specifically recite a machining step. Also, the use of the conditional word "may" in claims 1 and 12 renders the scope of the claimed micro-defects unclear. Also, Maydan (col. 5, line 64) specifically teaches a machining step. Additionally, the polishing step that Maydan teaches at col. 6, line 1, can properly be considered a machining step, because it

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inherently, or at least obviously, is put into practice by using a machine. Furthermore, as noted in the statement of the rejections above, the present product-by-process claims prima facie do not structurally distinguish over the cited references.

Regarding claim 8, it is noted that Maydan (col. 6, lines 18-20) teaches the use of materials for his GDP such as Si_3N_4 , Al_2O_3 , and AlN , which are applicants' preferred materials (see claim 10). Therefore, these materials suggested by Maydan would inherently have the same chemical reaction properties as applicants' materials, because they are the same materials.

Regarding claim 16, it is noted that claim 16 does not specifically require a machining step. Also, the "product-by process" nature of claim 16 does not distinguish over the cited prior art. Also, as pointed out in the statement of the rejections, Wicker I, Chen, Wicker II and applicants' description of the prior art all describe heating pretreatment steps for a GDP.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (703) 308-1895. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Richard Bueker
Primary Examiner
Art Unit 1763

April 9, 2002